

Overview of Caltrans-Funded Land Use/Transportation Studies at three levels: 1) *Statewide/Regional*; 2) *Local*; 3) *Site-specific*

1. “Assessment of “Integrated” Land Use/Economic/Transportation Models” – U.C. Davis

Background: State and regional transportation planning agencies commonly operate “four-step” travel demand models to estimate the potential outcomes of proposed transportation plans, programs, and projects on travel, congestion, and air quality. However, stand-alone travel models typically are not able to assess how changes to transportation systems will affect land uses over time, and (vice-versa) how future land use development may affect transportation systems. Recently, “integrated” transportation/economic/land use models have been introduced in the U.S. that *can* provide robust analyses regarding a number of interactive effects among transportation, economic, and land use changes over time. Such integrated models have been used in Europe and other countries for a number of years, and are currently being implemented by the Sacramento Area Council of Governments (SACOG), as well as the Oregon and Ohio DOTs.

Objectives: In close coordination with technical modeling staff of several major MPOs and Caltrans, this study: evaluated several integrated transportation/land use models, assessed how such models might provide enhanced capabilities to evaluate transportation, economic, and land use interactions (such as job/housing proximity, smart growth land use strategies, fee-based options, etc.), and summarized how such models could be useful in better understanding these relationships. In addition, this study has identified the major data and operational requirements of integrated models, and summarized their implementation benefits. A final report summarizing the study’s process, participants, findings, and recommendations was published in June 2006. It is available at: <http://www.ice.ucdavis.edu/um/>

Outcomes: This study influenced a recent decision by the San Diego Association of Governments (SANDAG) to implement an integrated model for intra-regional analyses (“PECAS”). It also led to Caltrans’ recent initiation of a major feasibility study of the potential implementation of a statewide integrated model for interregional and interstate analyses of economic, transportation, and land uses. Michael McCoy of the UC Davis Information Center of the Environment is the Principal Investigator for this feasibility study, which started in October 2006 and will be completed in 2009.

2. “Assessment of Local Models and Tools to Analyze Smart Growth Strategies”

Background: Cities, counties, and private consultants use local-scale travel demand models to assess the potential benefits and impacts of transportation projects and programs. These models are also used to estimate the transportation and air quality effects of local land use plans, programs, and projects (such as General and Specific Plans, and major developments). Local travel models also provide data for environmental assessments, as well as inputs to “micro-simulation” models that Caltrans uses to design intersection and overpass projects.

Objectives: This study assessed the “state of the practice” regarding local-level models and tools, especially regarding their abilities to effectively analyze land use plans and projects, emphasizing “smart growth” strategies. It evaluated the capabilities of travel demand models, as well as several new software “planning tools” (PLACE3S, INDEX, and 4D elasticities post-processor) for assessing land use plans and projects. A representative technical advisory committee consisting of staff of local and regional agencies and consultants helped guide this effort.

Results: Caltrans published a final report on July 27, 2007 that summarizes the results of this study as well as recommendations for ways models and tools used at local levels might be improved to more effectively assess smart growth strategies. DKS Associates conducted this study with input from other consultants. The final study report can be downloaded at: http://www.dot.ca.gov/newtech/researchreports/reports/2007/local_models_tools.pdf

3. Trip-Generation Rates for Urban Infill Land Uses in California –Kimley-Horn/EPS

Background: The California Environmental Quality Act (CEQA) and NEPA require that potential transportation and air quality impacts of proposed land use development projects be assessed. Large development projects typically require the use of four-step travel demand models. However, to evaluate smaller land use projects, consultants and local agencies typically rely on data provided in the Institute of Traffic Engineers' (ITE) *Vehicle Trip Generation Rates*. However, unfortunately the ITE trip generation rates currently do not take into account differences regarding the location or configuration of land uses, such as those located in urban infill vs. outlying suburban areas. Nor do they account for the availability or proximity of transit service or pedestrian/bicycle facilities in relation to such land uses.

Objectives: A primary objective of this effort is to produce empirical trip generation rates data for land uses in urban and suburban infill areas in California for use in transportation planning and traffic engineering studies. Another objective is that this data will be acceptable to the Institute of Transportation Engineers (ITE) and - with the addition of empirical data nationally (via a recently approved NCHRP study on the same topic) - be integrated into *Trip Generation* (or another appropriate ITE publication). A final objective is that this research will establish a standardized data collection and analysis methodology that will result in consistent data production after this study is concluded.

This study is being closely coordinated with ITE staff in order to obtain acceptance for using the new rates that are being developed. In addition, a representative technical advisory committee consisting of staff of local and regional agencies and consultants is helping to guide this effort. Jim Daisa of Kimley-Horn & Associates (consultant), along with Economic & Planning Systems (subconsultants), are conducting this study for Caltrans. This effort started in Fall 2005 and the first phase will be completed by Spring 2008, at which time a second Caltrans-funded data collection phase will develop additional infill trip rates for California.

Additional efforts: Phase 2 of this study will gather additional infill trip generation rates data (also funded by Caltrans) will begin in Spring 2008 (for \$250,000). Phase 2 will provide additional trip generation rates data as a follow-up to Phase 1.

In addition, the Transportation Research Board's National Cooperative Highways Research Program (NCHRP) recently approved a proposal submitted by Caltrans staff to conduct a similar study at the national level. It is: Project 08-66, FY 2008 - *"Trip-Generation Rates for Infill Land Use Developments in Metropolitan Areas of the U.S."*